Six Tips for Improving Duration Estimates

It's not easy to accurately estimate duration times of projects and tasks. Here are a few tips for improving your accuracy.

See also the PERT estimation technique on the following page.

The Tips

1 – **Use Historical Data** – One of the best sources of information about how long something will take is the answer to the question, "how long did it take last time?" If you can get historical data, use that to help you out.

Two things about this: (1) remember that all projects are unique and historical data must be considered alongside current information about the environment in which project activities will be performed (e.g., organizational culture and activities that may influence the project); (2) you can only get historical data when you can find it. Be thinking *now* about how you will find historical information about current projects later.

2 – **Use several sources** – In addition to historical data, there are many other different sources that can help you in your estimates. Consider the following: expert opinion, estimation techniques (see below for PERT for example), and your own feelings and intuition.

If you have experience with projects of a similar nature within your organization, trust your intuition when it's telling you that an activity is going to take longer than your initial estimate.

3 – **Involve the people who will be performing the tasks** – Next to historical data, the people who will be doing the work will know better than anyone how long a given task is likely to take. Consider getting several estimates from your workers – for example, you might ask for optimistic, pessimistic, and most likely (see the PERT technique below).

4 – **Define project tasks carefully, deliberately** – The more clear you can be about what work needs to be accomplished, the easier it will be for project team members or any experts you approach to provide accurate estimates for that work. Define task start- and end-points clearly and avoid the use of jargon.

5 – **Minimize use of fudge factors** – Remember Parkinson's law—"work expands to fill the time available for its completion." If you include fudge factors, the project end time is almost certainly likely to be artificially inflated. If you use fudge factors, team members and other project stakeholders tend to lose faith in your accuracy because they know your playing with the numbers rather than thinking through activities and timeframes in detail.

6 – **Practice** – Keep good records and practice. Estimating is notoriously difficult. Don't let anyone tell you otherwise. And the more you practice the better you'll get over time.

The PERT Estimation Technique

There's a commonly used model for creating more accurate estimates that you should know. It's called PERT.

PERT Stands for *Program Evaluation and Review Technique* and uses a weighted average of three numbers to come up with a final estimate.

The PERT model is represented in the following equation…

$$\text{Expected Value} = \frac{O + (4 \times M) + P}{6}$$

...in which:

- O = The most *optimistic* case where everything goes right
- P = The most *pessimistic* case when everything goes wrong
- M = The *most likely* case given normal problems and opportunities

Here's an example of the PERT model in use:

Let's say you're discussing an estimate for a programming task with one of your application engineers. Her initial estimate suggests that the task is most likely going to take ten hours. She says the best case, if everything goes right, is about six hours. And the worst case, if everything goes wrong, is about 26 hours.

When plugged into the PERT model, that would look like this:

$$\text{Expected Value} = \frac{6 + (4 \times 10) + 26}{6}$$

When you solve for Expected Value, you get 12.

Note that the final expected value was pulled toward the pessimistic estimate, but not by much, since the result is still weighted heavily toward the most likely value.

Consider using the PERT model for estimating time on tasks that are of high risk—ones where you're not really sure of the estimate and there's a wide variation between the optimistic and pessimistic values.